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*Eastern States Division*



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## REPORTS OF SCIENTIFIC ACTIVITY

### HIGH SCHOOLS

**Boston College High School.** During the coming year selected chemistry classes will be taking the Chem Studies advanced course on a pilot basis.

Mr. Castricotta, a chemistry student, won first prize in the Boston Archdiocesan Science Fair and third prize in the Massachusetts State Science Fair, held at M.I.T. He was cited for his demonstration of the "Determination of phosphorus by paper chromatography".

Mr. Joseph Claffey of the physics department received an NSF summer grant to continue his degree work at Clarkson University.

**Fordham Prep.** Two seniors at Fordham Prep, Franklin A. Bonin and John M. Fiscella, won full-tuition college scholarships in the recent New York Catholic Science Council's Annual Scholarship Project Contest.

Mr. Bonin, who will attend Iona College, constructed a field ion microscope under the direction of Fr. Clarence Schubert, S.J. Mr. Fiscella built a mass spectrograph under the direction of Fr. Frederick Dillemuth, S.J. He will enroll at St. Francis College. Both students had been working on their projects for the past two years in the university chemistry department with Fr. Schubert and Fr. Dillemuth.

**Gonzaga High School.** Fr. Robert F. Mullan, S.J. organized and directed a summer seminar in the biological sciences under the auspices of Gonzaga. Consultants for the program which ran from June 11 to July 13 were: Fr. Francis J. Heyden, S.J. of the Georgetown Observatory, Dr. Koppanyi of the Georgetown Medical School, and Colonel Maloney of Walter Reed Hospital. Other speakers were also drawn from these institutions as well as from the Walter Reed Army Institute of Research, the World Health Organization, and the Army Surgeon-General's Office. Fr. Raymond Lelii, S.J. assisted Fr. Mullan in conducting the seminar.

A formal talk was scheduled for each morning, and was followed by a discussion among the participants. Time was then devoted to reading and writing on scientific topics. Dr. Hilary J. Deason, director of the AAAS Library Program, recommended pocket-books which were made available to each member of the seminar. Dr. Israel Light, chairman of the Education and Professional Development Committee of the Society of Technical Writers and Publishers, provided a weekly lecturer on scientific and technical writing. Seminar students wrote scientific papers under the guidance of experts in the field.

Tours of research labs in the Washington area as well as selected scientific films were also offered to the students. The tuition fee was \$25.00 for the five-week course.

An outline of the seminar topics is included below.

#### SUMMER SEMINAR IN BIOLOGICAL SCIENCES

##### A. *Generic Introductory Topics*

1. Survey of biological sciences: a story of ideas
2. The experimental method:
  - man develops methods for the study of natural sciences and applies them to the world around him
  - our gain is twofold:
    - a. his methods tell us much about the nature of science
    - b. their applications tell us much about nature

3. Anthropology: man sees himself as a member of the human species in the cultural stream of the past

##### B. *Some Trials, Some Defeats, Some Conquests*

1. The great plagues of the past and their impact on the present
2. Biology and modern surgery: three discoveries made possible the development of the skills and techniques of modern surgery:
  - a. anesthesia
  - b. the germ theory of disease and concepts of antisepsis
  - c. blood groups and transfusions
3. Cancer: the normal structural pattern of organization is disrupted by uncontrolled cell division. What abnormality of cellular physiology brings about this?

##### C. *The Individuality of Man's Nature*

1. Heredity and environment
2. The brain and nervous system
3. The endocrines and hormone regulation

##### D. *In Imitation of Nature*

1. The heart pump and open heart surgery
2. Kidney function and the artificial kidney
3. Chemotherapy
4. Immunity: natural and artificial
5. Tissue grafts and transplants

##### E. *New Frontiers in Biology*

1. Radiation biology
2. Biology of the space age
3. Health problems of underdeveloped countries
4. New sources for world food
5. Propaganda, brainwashing and the struggle for men's minds

**St. George's College (Jamaica, W.I.).** The Science Society at St. George's recently sponsored a "Science Open House" in the biology, chemistry and physics laboratories. Over one hundred demonstrations and displays were featured, from the simple preparation of hydrogen gas and the dissection of a dogfish to the complicated mechanism of the Winhurst machine, the manufacture of sulphuric acid, and an exhibit of human embryos.

Members of the faculty of the University of the West Indies attended along with a large number of secondary school teachers. Also present was Mr. Philip Hodge of the United States Information Service.

**St. Joseph's Prep.** Fr. Stephen A. Garber, S.J. has received his second grant from the Heart Association of Southeastern Pennsylvania, this time to study the blood cholesterol content of various ethnic groups within the immediate area of the high school. The grant provides \$150 for equipment and \$600 for the administrator.

#### COLLEGES AND UNIVERSITIES

**Boston College.** The department of geology graduated its first class of geology majors in June. Nine of the ten graduates will be pursuing further studies at the following universities: Boston, Boston College, Brown, Missouri, Texas, and West Virginia.

Fr. James W. Skehan, S.J., chairman of the department of geology, was the author of the recently-published Bulletin 17 of the Vermont Geological Survey entitled, "The Green Mountain anticlinorium in the vicinity of Wilmington-Woodford, Vermont".

An NSF-sponsored undergraduate research participation program in geology will begin this fall.

**Canisius College.** For several years individual faculty members have been interested in applications of computers to teaching and research in the fields of business and chemistry. Mr. R. G. Allyn of the accounting department, Dr. A. S. Murphy, dean of business administration, and Dr. H. A. Szymanski of the chemistry department were active in the establishment of the Western New York Computer Society five years ago. After a period of quiescence, interest has become more active recently. There have been several discussions by faculty members on the possible utilization of a computer in the fields of education, psychology, mathematics and physics. Fr. Robert A. Haus, S.J., acting as informal coordinator, arranged for a series of five lectures on computer terminology and basic programming. The lectures were given by an IBM representative, who explained the IBM 1620 digital computer. Representatives from other manufacturers have also been in touch with Fr. Haus.

*Computers, anyone?* It would be a great help if BULLETIN readers who have computers on campus, or who have used computers in their work, would send a word or two on their experience to Fr. Haus (Canisius College, Buffalo 8, N. Y.). Practical questions are:

1. What kind of machine do you have?
2. How do you like it? Does it have any particular advantages or disadvantages?

3. Who uses it? Do undergraduates use it for class and/or lab? Do graduate students and professors use it for research problems? Which departments use it?
4. What are the administrative arrangements? Is it independent of all departments or does it "belong" to one department? How is computer time scheduled?
5. Are there any full-time employees? Part-time employees?

*Physics.* After several honorable mentions the physics department finally received an NSF fellowship for graduate work in physics. Mr. Kenneth R. Piech is attending Cornell University, working in theoretical physics. Two others from the 1962 graduating group of seven are pursuing full-time graduate work, one at the University of Pittsburgh and the other at the University of Notre Dame. Since the beginning of the physics major program in 1939, 160 majors have graduated. Of these at least eleven have received the Ph.D. degree, of whom five are teaching at the college or university level (Buffalo, Canisius, Michigan, Notre Dame and Western Reserve).

**Fairfield University.** Research and equipment grants as well as the establishment of a chapter of an honor fraternity highlight activity at Fairfield in recent months.

*Biology.* A Connecticut Alpha chapter in the international pre-medical honor fraternity, Alpha-Epsilon-Delta, was installed in the biology department. Fairfield thus becomes the third Jesuit university to receive this honor, and the first Jesuit university in the East. (The University of Detroit and Seattle University had previously installed chapters.)

The department placed twelve out of thirteen seniors in medical schools. The twelve will attend the following medical schools: Yale, Duke, Seton Hall, Albany, Rochester, Loyola, St. Louis, New York, the State University of New York, Georgetown, Creighton and the Medical College of Virginia.

An NSF undergraduate research participation grant for \$991 was made to Dr. John A. Klimas to continue his research in diabetes.

*Chemistry.* The chemistry department has received an NSF undergraduate instructional equipment grant for \$21,890 under the direction of Fr. Robert E. Varnerin, S.J. Major equipment to be purchased under this grant will include infrared and ultraviolet spectrophotometers, an emission spectrograph, and X-ray diffraction apparatus and other equipment stressing spectral methods of analysis.

An NSF in-service teacher training grant was renewed for the academic year 1962-3 under the continuing direction of Dr. John A. Barone. The grant allows for sixty secondary school teachers to enroll in biology, modern physics or mathematics courses leading to a master's degree in education.

The AEC has granted the department \$3500 for the purchase of nuclear

instrumentation and the introduction of further radiochemical techniques in the junior and senior courses. Jerome Perez will direct the program.

**Fordham University.** The mathematics department has received a grant of \$25,260 from the NSF to help to develop a new set of courses in mathematics and physics for freshmen and sophomores who intend to major in these subjects. The support of the program, which began in September, extends over the next two academic years.

*Revised mathematics-physics program.* A principal objective of the program is to provide a solution to the perennial problem of organizing mathematics and physics instruction in a properly graded sequence. The first course in general physics is taught with the notions and techniques of the calculus at the same time that the students are trying to learn the calculus. This has resulted in a rather unsatisfactory compromise both in the rigor and the level at which the calculus has been taught, and in the efficiency and depth at which the physics course has been taught.

Since all incoming freshmen of Fordham College who intend to major in mathematics or physics have had a general survey in physics in high school, the new program will introduce the following features:

- 1) the traditional first year course in general physics is dropped from the curriculum;
- 2) an intensive course in analysis is conducted in the freshman year, which rigorously develops analysis through the usual topics in advanced calculus;
- 3) in the sophomore year, the analysis course is continued through advanced topics;
- 4) also, in sophomore year, both physics and mathematics majors take intensive courses in mechanics, and in electricity and magnetism which are mathematically rigorous and which are based on the advanced mathematics the students have mastered in the freshman year.

The funds contributed by the NSF will partially defray faculty salaries and permit reduced teaching loads for the teachers in the program; will provide assistantship support for graduate students who will be drill instructors in the freshman mathematics course; and will also provide for the publication of course notes, which are developed to correlate instruction in mathematics and physics in an optimal sequence.

All the course notes developed in this program, as well as all the pertinent information regarding the program, will be made available to other colleges and universities interested in the results of the experimental program at Fordham.

*Physics.* Dr. Hans Bomke, adjunct professor of physics, was invited by the government of Peru to participate in the International Conference of

Equatorial Geo-Physics held in Lima in September. Dr. Alfons Weber, associate professor of physics, presented an invited paper on high resolution Raman spectroscopy at the Mid-American Spectroscopy Symposium in Chicago in April.

Professor Siegfried Flugge, a member of the Physics Institute at the University of Freiburg in West Germany, and editor of the new sixty-volume *Handbuch der Physik*, spent three days as a visiting physicist in the physics department. Professor Flugge gave four lectures to the graduate students on new approaches in theoretical nuclear physics. He addressed the undergraduate physics society on "Traditional and contemporary concepts in physics," and also gave a colloquium talk on recent work on the three-body problem of quantum mechanics. Professor Flugge's visit was sponsored jointly by the Fordham physics department and the visiting scientist program of the NSF.

**Georgetown University.** Fr. Francis J. Heyden, S.J. lectured on "Life on the planets," and Fr. Martin McCarthy, S.J. on "The ages of stars," at the dedication of the new science building at Villanova University in March.

**Observatory.** Fr. McCarthy and Fr. Richard Ingram, S.J. have completed a program for the Burroughs E-101 computer which provides for an automatic determination of the air mass and the secant of the zenith distance from the known right ascension, declination and hour angle of a star. This will greatly facilitate the determination of extinction corrections for all observations made at Georgetown. The program was based on a method used at Kitt Peak Observatory.

Mr. Whiting R. Willauer has obtained eight plates of the Comet 1962c, Seki-Lines during its recent perihelion passage. This past summer the E-101 computer was used for the automatic reduction of positions and orbital elements for this comet.

With the help of the chemistry department work is continuing on the analysis of the solar spectrum diffused through the oxides of nitrogen under controlled laboratory conditions. It is hoped in this way to explain the observed absorption features in the ultraviolet spectrum of Mars as observed by Dr. Kiess of the observatory staff.

Mr. George V. Coyne, S.J. (*Md.*), in continuing his work in comparative spectrophotometry of the lunar surface, has found that emission features superimposed on the comparative spectral reflectance curves of certain lunar features indicate the presence of luminescent materials on the lunar surface. Studies of the airglow of the earth's atmosphere which gives similar emission features, and investigations of solar activity which influences lunar luminescence provide areas for future research at the observatory.

**Physics.** The National Capital Section of the Optical Society of America

was inaugurated at a meeting held at Georgetown in May. Sixty-five physicists from the greater Washington area and from Baltimore, who are interested in optics and spectroscopy, were present at the meeting. The Optical Society of America is a nationwide organization which was founded in 1961. Local sections already existed in nine different areas in the United States.

At the organizational meeting Fr. Matthew P. Thekaekara, S.J., acting chairman of the physics department at Georgetown, was elected second vice-president of the Washington section.

The NSF is supporting an undergraduate research participation program under the direction of Fr. Thekaekara, extending from the past summer through the 1962-63 academic year. Six students majoring in physics will work with faculty members and senior graduate students on experimental research projects of current interest in the physics department.

The NSF has also awarded the department a grant amounting to \$24,700 for fixed equipment for research facilities in physics. The grant, which will be matched by an equal amount from the University Development Fund, is to be used towards the purchase and installation of fixed equipment in the physics research area of the new science building.

The AEC has approved a proposal made by the physics department for a nuclear science education program in the graduate school. The grant of \$22,037 will be used for purchasing nuclear science equipment which will also be installed in the new science building.

**Holy Cross College.** Professor Robert W. Ricci of the chemistry department presented a paper at the 1962 meeting of the International Dental Association in St. Louis. The paper discussed the effect of film thickness, the pH and concentration of buffers on the pH of thin glycollizing film. Dr. Ricci conducted research in this area at the Tufts Dental School in 1961 and has served as a consultant on the problem since that time.

**Biology.** The biology department was the recipient of a grant of \$8200 from the NSF for undergraduate instructional scientific equipment.

**Loyola College.** Fr. Joseph S. Didusch, S.J. celebrated his golden jubilee of ordination to the priesthood on May 13. His Excellency, the Most Reverend Lawrence J. Shehan, Archbishop of Baltimore, was the celebrant of a pontifical Mass of thanksgiving in observance of the jubilee.

Professor Emeritus and former chairman of the biology department at Loyola, Fr. Didusch has devoted forty-two years to teaching, twenty-three years of which have been at Loyola. Among his many hundreds of former students are scores of physicians, surgeons, dentists and biologists with whom he has maintained close personal contact over the years.

Fr. Didusch was born in Baltimore on November 25, 1879, and attended

Loyola High School. After graduating from Loyola College in 1898 he entered the old Jesuit Novitiate at Frederick, Maryland, and continued his studies at Woodstock College. He also did graduate work in biology at Columbia University.

Before coming to Loyola in 1935 as professor of biology, Fr. Didusch taught at Loyola School in New York and at St. Joseph's College in Philadelphia, where he also served as dean. He was regent of the medical and dental schools at Georgetown University and rector of the Jesuit Novitiate at Wernersville, Pennsylvania.

**St. Joseph's College.** Fr. Francis MacEntee, S.J. of the biology department spent the past summer at the University of Texas on an NSF research grant. He worked with Dr. Harold Bold, studying unicellular algae.

**Physics.** The physics department has been awarded \$25,000 by the NSF for undergraduate instructional scientific equipment. Matching funds, as required by the NSF program, will be supplied by a recent private benefaction to the department. The grant will help greatly in the expansion of the physics and electronics programs in which 180 students are presently enrolled as majors.

In preparing the proposal for the grant, the department, under the direction of Fr. John S. O'Conor, S.J., cited the tenfold increase in enrollment over the past ten years. Laboratory facilities have been overburdened by this expansion, and much of the equipment is inadequate due to wear, obsolescence and insufficient quantity. Developments, especially in solid state physics and electronics, also warrant introduction of much new material in the advanced laboratories of junior and senior years.

The grant allotted to the advanced electronics laboratory such equipment as a wave analyzer, pulse generators, signal and noise generators, oscilloscopes and desk calculators.

A microwave laboratory for senior instruction will also be set up as an excellent method of teaching basic wave phenomena and of presenting graphically the idea of a boundary-value problem. A matched system of microwave equipment necessary for performing some seventeen experiments in microwave physics, together with a specially designed laboratory manual, is available as a unit from Serco, Seattle, Washington. Four such units will be purchased. Experiments will then be possible in the Hall effect, carrier mobility magnetic susceptibility, nuclear magnetic resonance and electron spin resonance.

For the junior laboratory in electrical measurements equipment will be purchased to supplement or make available for the first time experiments concerning the velocity of light, mass spectrometry, the measurement of Planck's constant by the photoelectric method, the Zeeman effect, the

Stark effect, spectroscopic measurements and the optical properties of metals.

**Wheeling College.** Dr. Jack Pinkus of the chemistry department taught organic chemistry at the University of Pittsburgh summer session.

Hubert McDonald, a junior chemistry major, received an NSF grant to attend the summer program in inorganic chemistry at Reed College.

The chemistry department, under the direction of Fr. Joseph A. Duke, S.J., received \$12,000 as part of the NSF undergraduate instructional scientific equipment program.

#### SCHOLASTICATES

**Shrub Oak.** Fr. Thomas L. Cullen, S.J. was granted a four month contract by the Organization of American States, Pan American Union, to act as consultant for the exchange of scientists program at the Universidad de Concepcion, Chile, and the Pontifica Universidade Catolica do Rio de Janeiro, Brazil.

Fr. James J. Fischer, S.J. was appointed to the advisory committee of the *New York State Mathematics Teachers Journal*. He would welcome short articles or notes on topics of interest to high school or grammar school teachers. Fr. Fischer also received an NSF grant to attend the 1962 Summer Conference at Marquette University for College Teachers of Mathematics. The lectures will be in the area of calculus and linear algebra, with discussions on the recommendations of the CUPM and on the SMSG texts.

Mr. Peter C. McNamee, S.J. (N.Y.) will begin graduate studies in physics at Stanford University on an NSF fellowship. Mr. Robert Yankevitch, S.J. (Md.), who received honorable mention in the NSF competition, will study mathematics at Johns Hopkins University.

Further experiments are being conducted to determine fallout in the atmosphere. Daily counts are taken from filters through which air is pumped for a period of twenty-four hours. At present the physics majors are calibrating the apparatus, and attempting a correlation between the radioactivity measured in the filters and the meteorological conditions at the time of measurement. Future experiments will center around a chemical analysis of the matter on the filters and equilibrium data of thoron and radon.

*Loyola Science Academy.* The academy, under the direction of Mr. Peter Fink, S.J. (N.Y.) retiring president, completed a successful program of guest and student lectures when Mr. Felix Germino, research chemist for the American Machine and Foundry Company, spoke on "Amylose 'V' complexes".

Other guest lecturers for the year were Mr. Louis Savary, S.J. (*Md.*), graduate student at Catholic University, who spoke on "Probability and statistics," Fr. J. Franklin Ewing, S.J., of the Fordham anthropology department, speaking on "The sacramental character of the universe," and Fr. Francisco X. Roser, S.J., director of the Instituto de Fisica, Pontifica Universidade Catolica do Rio de Janeiro, whose topic was "The scientist and the apostolate."

Mr. Andrew J. O'Brien, S.J. (*Md.*) initiated the student lectures with a discussion of "Radioactivity and the means of detection of radiation due to atomic bomb tests". Mr. Peter McNamee, S.J. (*N.Y.*) followed with an "Application of the Schwartz-Christoffel transformation to electrostatic fields," a talk subtitled, "The interplay of mathematical and physical reasoning." Later in the year, Mr. William Rogan, S.J. (*Md.*) lectured on the "Photodynamic hemolysis of erythrocytes."

During the year members of the academy heard taped lectures on various scientific topics, among them a series of talks on the universe by Professor Peter Millman, astrophysicist at the National Research Council in Ottawa, Canada. A number of technical and semi-technical films were also made available to academy members. Notable among these were: "The fossil story" (Shell Oil), "Inertial navigation" (Autonetics), and "High-energy particle accelerators" (Brookhaven).

Projected for the coming year is an even more intense program of guest and student lectures and other scientific presentations for the members of the academy and for the community as a whole. The newly-appointed officers are Mr. Richard Sullivan, S.J. (*Buff.*), president, and Mr. Victor Alessi, S.J. (*Md.*), secretary.

**Spring Hill College.** Four philosophers were awarded NSF predoctoral fellowships and two received honorable mention. Of the former, Mr. Joseph Johnson, S.J. (*Md.*) will study biochemistry at Brandeis University; Mr. Victor Newton, S.J. (*N.E.*) will go to M.I.T. for nuclear physics; Mr. George Shoup, S.J. (*Md.*) and Mr. Gary Schwartzkopf, S.J. (*N.Y.*) will study biology at Johns Hopkins University and Harvard University, respectively.

In addition to receiving honorable mention in the NSF competition, Mr. Francis Doe, S.J. (*N.E.*) and Mr. Michael Collins, S.J. (*Mo.*) have received tuition scholarships to Brandeis University, Mr. Doe in biology and Mr. Collins in nuclear physics.

Mr. Donald Matthys, S.J. (*Wisc.*) completes the list of Spring Hill graduates entering graduate school. He will study nuclear physics at the University of Pennsylvania.

**Weston College.** A number of theologians pursued studies and research during the past summer. Mr. Kenneth Siberz, S.J. (*Calif.*) and Mr. John

Williamson, S.J. (N.E.) studied mathematics at Fordham. Mr. Hilario Bellardo, S.J. (*Phil.*) attended the Mathematics Institute at Boston College, and Mr. John Hollohan, S.J. (N.E.) participated in the Mathematics Institute at Holy Cross.

In chemistry, Mr. Ramon Katigbak, S.J. (*Phil.*) studied at Fordham, while Mr. Lawrence Burke, S.J. (N.E.) attended the Summer Institute in Science at Holy Cross. Mr. George Farrell, S.J. (N.E.) spent the summer at Boston College working on nitrogen fluorides with Dr. Robert O'Malley of the chemistry department.

Mr. Donald Plocke, S.J. (N.E.) worked at the biophysics research laboratory of the Peter Bent Brigham Hospital on *E. coli* alkaline phosphatase. He continued studies reported in his recent publication, "Alkaline phosphatase of *E. coli*: a zinc metalloenzyme," *Biochemistry* 1, 373-78 (1962).

Mr. Clarence Stankiewicz, S.J. (*Md.*) taught a course in biology to the advanced science group at St. Joseph's High School in Philadelphia, and Mr. James Schecher, S.J. (N.E.) taught the first semester of general physics to the incoming first year philosophers.

Fr. Edward MacKinnon, S.J. (N.E.) recently published an article entitled "Science" in *The Furrow* 13, 280-87 (1962), as part of a series on "The Christian in the world".

#### MISCELLANEOUS

**New NSF Program.** Twelve Jesuit schools were among the 263 colleges and universities which were the recipients of the first awards in the newly-established NSF undergraduate instructional scientific equipment program. Four of these schools were cited above. A complete listing of the twelve schools, the department, the grantee, and the amount of the grant is given below:

- Fairfield University (chemistry, Fr. Robert E. Varnerin, S.J.), \$21,890
- Georgetown University (biology, Thomas A. O'Keefe), \$25,000
- Holy Cross College (biology, Fr. John W. Flavin, S.J.), \$8200
- John Carroll University (chemistry, Richard J. Gaul), \$13,930
- LeMoyne College (chemistry, W. W. Gibson), \$9330
- Loyola University of Chicago (biology, Fr. Walter Peters, S.J.), \$12,500
- Marquette University (electrical engineering, Arthur C. Moeller), \$25,000
- St. Joseph's College (physics, Fr. John S. O'Conor, S.J.), \$25,000
- St. Louis University (chemistry, Lyman J. Wood), \$25,000
- University of Santa Clara (biology, John B. Drahmann), \$4960
- University of Scranton (physics, Joseph P. Harper), \$21,580
- Wheeling College (chemistry, Fr. Joseph A. Duke, S.J.), \$12,000.

The press release accompanying the May 16 awards described the new program.

Undergraduates in 263 colleges and universities will be offered improved instruction in science and engineering through NSF matching grants for the purchase of modern scientific equipment.

Announced today were 334 grants amounting to \$5,009,180 to assist educational institutions meet the national need for competent scientists and engineers by keeping abreast of the rapidly changing needs in undergraduate instruction.

The NSF grants will be matched by the recipient institutions, making a total of more than \$10 million available for the purchase of items such as microscopes, small computers, spectrophotometers, balances and other scientific instruments.

Growing numbers of colleges and universities are revising course offerings, modernizing and making them more effective. Other colleges and universities are planning new and better courses in science. Many improvements require suitable scientific equipment or instructional purposes.

In choosing proposals for support, the Foundation placed priority on those which showed the relationship of the equipment being sought to a new or improved instructional program in a specific area of science.

The need for up-to-date scientific instructional equipment, and the importance of this aspect of the Foundation's responsibility to science education in the United States, were reflected in the large number of proposals to the Undergraduate Instructional Scientific Equipment program.

Although the maximum number of proposals each institution could submit was limited, based on the number of science and engineering baccalaureates granted in 1959-60, 1,124 proposals requesting more than \$16 million were received from 782 institutions. Grants were limited to \$25,000.

For further information on this NSF program, write to: Special Projects in Science Education, National Science Foundation, Washington 25, D. C.

**Spectroscopist-of-the-month.** Fr. Joseph Junkes, S.J. of the Vatican Observatory staff was cited as the "spectroscopist-of-the-month" in the April 1962 issue of *Arts and Sparks*, published by the United Carbon Products Co., Bay City, Michigan.

Fr. Junkes is the director of the astrophysical laboratory at the Vatican Observatory, having succeeded Fr. Alois Gatterer, S.J. in 1953. Since its founding in 1934 by Fr. Gatterer, the laboratory has concentrated on spectrochemical studies of meteorites. Significant publications have included atlases of the arc and spark spectrum of iron and of the band spectra of metallic oxides. At present Fr. Junkes is completing a spectral atlas in the Schumann region, after which he and his group will prepare an atlas of the thorium spectrum.



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CONTENTS

Reports of Scientific Activity .....	59
High Schools .....	59
Colleges and Universities .....	61
Scholasticates .....	67
Miscellaneous .....	69